

Federal and Michigan Air Quality Legislation

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Federal and Michigan Air Quality Legislation

Federal Clean Air Act (CAA)

Legislation: 42 United States Code sections 7401-7626 (42 U.S.C. §7401 et seq.)

Regulations: 40 Code of Federal Regulations parts 50 et seq.

Clean air legislation at the federal level has been addressed many times by Congress through acts and amendments beginning in 1955 with the Air Pollution Control - Research and Technical Assistance Act. In the 1960s, Congress passed legislation that authorized the U.S. Public Health Service to study air pollution and to provide grants and training to state and local agencies to control air pollution. In 1970, the Clean Air Act (CAA) became the cornerstone of current federal air quality regulations. The CAA has been amended in 1977 and 1990 with the 1990 amendments having far reaching effects on industries not previously regulated under the Act.

The 1970 federal CAA delegated authority to states to control air pollution and addressed stationary sources such as factories (Title I), mobile sources such as automobiles (Title II), and set forth standards for judicial review, provisions for citizen suits and definitions. The 1977 amendments expanded the Title I stationary source requirements. The 1990 CAA Amendments have seven key titles:

- Title I - Provisions for Attainment and Maintenance of National Ambient Air Quality Standards
- Title II - Provisions Relating to Mobile Sources
- Title III - Air Toxics (Section 112 of Title I of the Clean Air Act)
- Title IV - Acid Deposition Control
- Title V - Renewable Operating Permits
- Title VI - Stratospheric Ozone and Global Climate Protection
- Title VII - Provisions relating to Enforcement

The titles of the 1990 Amendments are addressed in more detail in Appendix A. These titles have been incorporated into the Clean Air Act (see Appendix D).

All federal air emission regulations are found in the *Code of Federal Regulations* (CFR) in section 40, part 50 et seq., and the Clean Air Act is found in the *United States Code* (U.S.C.) in 42 U.S.C. sections 7401 through 7626. Proposed and final rules for the CAA appear daily in the *Federal Register* prior to being codified in the *Code of Federal Regulations*. Regulations published in the *Federal Register* generally contain information on why the regulation is being proposed, background documentation, the regulation itself, and timeframes for meetings and public comment periods.

National Ambient Air Quality Standards (NAAQS)

One of the purposes of the CAA is to "protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare" [CAA Section 101(b)(1)]. The 1970 CAA authorized the establishment of nationwide primary and secondary air quality standards - the National Ambient Air Quality Standards (NAAQS) [CAA Section 109].

Primary standards are designed to protect human health. Secondary standards protect public welfare, including air pollution effects on vegetation, materials, economic values, aesthetics, and visibility.

Standards were established for pollutants that posed the greatest overall threat to air quality throughout the nation. These pollutants are identified through measures outlined in Section 108 of the CAA. The U.S. Environmental Protection Agency (USEPA) must publish and periodically revise a list of pollutants that may “reasonably be anticipated to endanger public health or welfare” and which result “from numerous or diverse mobile or stationary sources.” These pollutants are known as criteria pollutants and include:

- sulfur dioxide (SO₂).
- airborne particulates-less than or equal to ten microns in size (PM-10); less than or equal to 2.5 microns in size (PM-2.5).
- carbon monoxide (CO).
- nitrogen dioxide (NO₂).
- ozone (O₃).
- lead (Pb)

The CAA requires a periodic review of each NAAQS. The PM-10 standard was adopted in 1987 and replaced the 1971 standard that measured total suspended particulates (TSP). In 1997, the USEPA announced the addition of a new PM-2.5 standard and the phase out and replacement of the previous 1-hour ozone standard with an 8-hour standard. The USEPA’s revised 8-hour ozone standard and new PM-2.5 standard withstood legal challenges. The old 1-hour ozone standard and the new 8-hour ozone standard are both now in effect as are the PM-10 standard and the new PM-2.5 standard. The particulate standards are currently undergoing another review by the USEPA.

Criteria documents, an extensive assessment of scientific data pertaining to the health and environmental effects associated with the pollutant are prepared. The CAA requires an extensive review of the criteria documents by a scientific advisory committee, a group of independent scientific and technical experts, along with representatives from the scientific community, industry and public interest groups.

Lead standards were last revised in 1978. Carbon monoxide standards were reviewed in 1999 and no particular change was made to those standards. Nitrogen oxides and sulfur dioxide standards were retained in USEPA decisions made in 1996.

The original criteria pollutants also included hydrocarbons. Control of hydrocarbons (also called volatile organic compounds or VOCs) serves as a way of controlling oxidants critical for attaining the ozone standard. Hydrocarbon control is handled through the MDEQ air rules and permitting process, and no NAAQS exists for VOCs..

By the mid 1970s, many areas of the country and many states had still failed to meet the ambient standards. The 1977 Amendments strengthened the Act with more stringent regulations for sources in nonattainment areas and promulgated regulations to prevent deterioration of air quality in attainment areas. The 1977 CAA Amendments gave the USEPA the power to enforce federal air pollution standards and the responsibility for assuring the attainment of the NAAQS. State and local governments were given primary responsibility for preventing and controlling air pollution. The 1990 CAA Amendments adjusted the attainment obligations for the NAAQS. A new scheme for the USEPA to classify and establish attainment dates for nonattainment areas based on various factors, including the severity of the problem, was established. The 1990 CAA Amendments also included prescriptive control measures to be implemented in nonattainment areas.

CAA Nonattainment Areas

States are required to identify areas which either meet NAAQS, do not meet NAAQS, or lack data to make a determination [CAA Section 107]. The USEPA then acts to set boundaries for nonattainment areas based upon (1) the entire consolidated Metropolitan Statistical Area (CMSA), or (2) the Metropolitan Statistical Area (MSA), or (3) the county boundaries if no CMSA or MSA is involved. The attainment status affects the way air permit applications are reviewed and the emission limits that are set for a source within these boundaries. Deadlines for attainment of air quality standards in these areas depend upon the pollutant and severity of the air pollution problems. Latest updates for attainment status in Michigan are found in the *Federal Air Quality Standards* section of this manual.

Depending on the pollutant, and the degree to which an area exceeds NAAQS, certain state actions are required. A state must prepare a detailed inventory of emissions, institute more restrictive permit limits, and implement various control measures.

State Implementation Plans

Under the CAA, each state must prepare a State Implementation Plan (SIP) describing how it will control emissions from mobile and stationary sources to meet NAAQS [CAA Section 110]. Mobile sources include cars, trucks, buses, boats, aircraft, motorcycles, and off-road vehicles. Stationary sources include a variety of sources such as power plants, oil refineries, dry cleaners, gas stations, and numerous industries. Within three years after the promulgation of a primary or secondary NAAQS, states must submit a plan to the USEPA for the implementation, maintenance, and enforcement of the standard in each NAAQS. The USEPA has twelve months to approve or disapprove the SIP.

If the plan is not adequate or if a state fails to submit a plan, the USEPA can promulgate federal regulations to substitute for or supplement that portion of the state's plan. SIPs include descriptions of air quality, emission inventories, compliance schedules to meet rules requiring emission reduction, more restrictive permit requirements for new sources, monitoring and reporting requirements, and enforcement procedures. SIPs are revised often as new regulations are promulgated or additional controls are needed to attain or maintain the NAAQS.

New Source Performance Standards

Under Section 111 of the CAA, the USEPA is authorized to establish new source performance standards (NSPS) for new or modified stationary sources in particular industrial categories. These NSPS are based on specific sources of pollutants and often cover several pollutants. The Standards of Performance for New Stationary Sources are found in 40 CFR Part 60. These standards set emission standards for over 60 categories of new major and non-major stationary sources that may reasonably be anticipated to endanger public health and welfare. A complete listing of the sources subject to the standards is provided in Appendix F.

NSPS are established at the national level and may be more stringent than necessary to meet the national air quality standards in a specific area. The standards are to reflect the degree of emission limitation and the percentage reduction achievable through application of the best technological system of continuous emission reduction. Standards must take into

account the cost of achieving reductions, any non-air quality health and environmental impact, and energy requirements [CAA Section 111(a)(1)]. These nationwide standards keep industries from moving to states with less stringent regulations.

New source performance standards exist so that new emission sources emit less pollution than their predecessors. NSPS applies only to sources that construct, modify or reconstruct after the date a NSPS was proposed for a particular source category.

New Source Review in Nonattainment Areas

In addition to the NSPS, new or modified major sources must meet special technology based and air quality based requirements in nonattainment areas. Major sources in ozone nonattainment areas are defined in relationship to the area's nonattainment classification. Major sources in non-classified, transitional, marginal or moderate ozone nonattainment areas include sources that emit or have a potential to emit 100 tons per year or more of VOCs. For a facility in a serious ozone nonattainment area, a major source classification would be the emission of, or potential to emit, 50 tons per year of VOCs. The major source classification for a severe ozone nonattainment area is 25 tons per year of VOCs.

Key elements of permits for facilities in nonattainment areas include installation of the most stringent control technology (Lowest Achievable Emission Rate or LAER) and the designation of an emission reduction (offset) for each major nonattainment air contaminant. LAER is defined as the most stringent emission standard in any state's SIP or the lowest emissions any source in the same category has achieved in practice. The USEPA maintains the BACT/LAER Clearinghouse that contains data from all states on control technology. In order to have increases due to new sources or modifications of existing sources, a facility must offset emissions through reductions at existing sources owned by the applicant or someone else. Actual, not potential, emission reductions must be used. The offsets must come from the same nonattainment area and it must be demonstrated that the offsets will improve the air quality in the area where the facility is located. For PM-10, CO, SO₂, and lead, the offset ratio is based on the location and type of offset and can range from 1.1 to 1.5:1. VOC offsets in ozone nonattainment areas are based on the degree of nonattainment and can range from 1:1 to 1.5:1. NO_x offsets in ozone nonattainment areas have more limited applicability and may be waived by the USEPA.

Prevention of Significant Deterioration (PSD)

Many areas of the nation currently satisfy existing air quality standards and are classified as attainment areas. In order to protect these areas, special rules were promulgated to prevent growth from causing a significant deterioration of air quality. The Prevention of Significant Deterioration (PSD) program relates to the SIP which must have provisions for review of new sources and modifications of existing sources that meet certain criteria [40 CFR 52.21].

PSD sources include:

- Major stationary sources in one of 28 listed categories that emit, or have the potential to emit, 100 tons per year or more of any pollutant subject to regulation under the CAA.
- Stationary sources that emit, or have the potential to emit, 250 tons per year or more of any CAA pollutant.

"Potential to emit" means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design under continuous operation.

A major modification would be any physical change in or change in operation of a major stationary source that would result in a significant net emissions increase of a CAA pollutant. Specific pollutants and emission rates are listed in 40 CFR 52.21. Any existing major source proposing a "major modification" would be subject to PSD review.

PSD provisions have air quality requirements beyond the NAAQS. The amount of air quality degradation allowed for a facility (air quality increment) is dependent on what area a facility impacts. Generally, the air impacts of a facility must be considered if it is located within 100 km of a Class I area. Class I areas include international parks and national wilderness areas, national parks, and national memorial parks above a certain size. Class II areas include the rest of the United States where moderate well-controlled growth can take place. The permit applicant will need to demonstrate that a facility's emissions in conjunction with all other emission increases above the baseline will not result in air quality degradation greater than the amount of increment available. Ambient air increments for each class must be met for sulfur dioxide, particulates, and nitrogen dioxide. For a source to demonstrate no degradation after construction, collection of up to one year of continuous air quality monitoring data may be necessary.

Section 52.21 of 40 CFR outlines the major considerations for a PSD permit application. These considerations are a control technology review which is a "top-down" review (a ranking system) of all available technologies, a source impact analysis, an air quality analysis, information about the source, and public participation through an opportunity for a public hearing. In order to obtain a PSD permit, a source must show that it will use Best Available Control Technology or BACT to reduce emissions. BACT is the maximum degree of emission reduction which the permitting authority, on a case-by-case basis, taking into account the energy, environmental, and economic impacts and other costs, determines is achievable for the facility.

National Emission Standards for Hazardous Pollutants (NESHAPs)

The CAA also requires the USEPA to set National Emission Standards for Hazardous Air Pollutants (NESHAPs). Emissions standards have been issued for asbestos, beryllium, mercury, vinyl chloride, arsenic, radionuclides, benzene, coke oven emissions, chrome platers, fiberglass boat manufacturing, solvent degreasers, and many other sources of hazardous air pollutants (HAPs). A major HAP source is a facility that emits more than 10 tons of any single listed HAP or 25 tons of all HAPs combined.

Since the 1990 CAA Amendments, the regulations developed for sources of HAPs are called the Maximum Achievable Control Technology (MACT) standards. MACT levels can be different for existing and new sources. The NESHAPs are found in 40 CFR Parts 61 and MACT standards in Part 63. MACT ensures that both new and existing major sources of toxic air pollution will use the kind of technology which provides maximum control of HAPs on an ongoing basis. The regulations for each type of source are still being promulgated for certain source categories.

The 1990 CAA Amendments also included a recognition that the USEPA might not be able to promulgate all of the source specific MACT standards within the time specified, and that there may be other major HAP source categories omitted from the initial list that should be required to apply MACT. Section 112(g) of the act specifies that new and modified major sources of HAPs are still required to apply MACT, although it may be different for each source. The 112(g) regulations do not address modified sources, only newly constructed and reconstructed sources. The Section 112(g) regulations are codified under 40 CFR Part 63, Sections 63.40 to 63.44 inclusive. The program became effective June 29, 1998. Implementation of the program is through the Permit to Install program.

Small businesses that are affected by the toxic air provisions include dry cleaners, printers, auto body repair shops, metal finishers, solvent degreasing operations, surface coating and painting operations, and certain small manufacturers. Firms that manufacture, store, and transport chemicals are also affected. These and other kinds of businesses will be controlled either as "major sources" or smaller "area sources".

Federal Operating Permit

Title V of the 1990 CAA Amendments establishes a comprehensive federal operating permit program that consolidates all of the requirements concerning air emissions for a facility in one document. Generally any "major source" of air pollution must obtain a Renewable Operating Permit (ROP) from the MDEQ, AQD as a condition for continued operation. The ROPs have a term of five years. Owners of all permitted sources are required to file periodic reports identifying the extent to which they have complied with all applicable requirements under the ROP.

The USEPA has addressed some small business permit concerns by deferring permit requirements for certain smaller sources (those not identified as major) until the USEPA issues a rule determining how to structure the program for such sources. The rules also provide for the use of "general permits" for certain types of similar (usually very small) sources of air pollution. Sources that qualify for such permits are able to meet the requirements by filing a simplified application or letter.

The USEPA's rules for state operating permit programs include provisions allowing companies to make certain operating changes without an extensive and time consuming re-permitting process, provided that the different operating scenarios are described in the permit application. Once these scenarios are approved in a permit, a business has the flexibility to make changes and to increase emissions consistent with approved permit terms, without notifying the MDEQ. In addition, the rules establish a process by which a business can make "administrative," "minor," or "off-permit" changes to its permit for certain limited situations not previously described in a permit application. As mandated by the CAA, Michigan has established a small business technical assistance program that can be consulted about air permit issues. See the CAAP guidebook, *Life After ROP; A Practical Guide to Complying with the Responsibilities after ROP Issuance*, for more discussion of operational flexibility in ROPs.

Acid Deposition Control

The acid rain provisions of the 1990 CAA Amendments (Title IV) set up a program to reduce and control emissions of SO₂ and NO_x from electric generating utility plants that use fossil fuel. The CAA Amendments call for a permanent national ten million ton reduction in SO₂

emissions from 1980 levels. Allowances to emit SO₂ are allocated to electric generating plants; each receives tradable allowances equal to the number of tons of SO₂ it is allowed to emit. If the source reduces its emissions below that amount, it can trade or sell its excess allowances. A source can also acquire (purchase) allowances from other sources or from USEPA auctions to increase their allowable emissions as long as they do not violate the NAAQS. This system of market trading is known as a “cap and trade” program. These provisions are incorporated into the source’s ROP to implement and enforce the acid rain program.

Stratospheric Ozone Protection

Stratospheric ozone protection regulations promulgated under Title VI of the 1990 CAA Amendments require the phaseout of chemicals that deplete the ozone layer in the upper atmosphere. Scientific studies have concluded that chlorofluorocarbons (CFCs) and other chemicals are causing depletion of the ozone layer, allowing increased levels of radiation to reach the earth’s surface. Title VI divides all known ozone depleting substances into two classes: Class I (CFCs, halons, carbon tetrachloride, methyl chloroform) and Class II chemicals (HCFCs) with accompanying phase out schedules.

Summary

Components of the federal CAA impact, and have been integrated into, Michigan’s air permitting strategy. An outline of the CAA Amendments, the CAA, and relevant sections of the *Code of Federal Regulations* is found in Appendices A, D, and E.

Michigan Air Pollution Control Legislation

Legislation: Original Act: Michigan Air Pollution Act, P.A. 348 of 1965, as amended; M.C.L.A. §336.11 to 336.36; M.S.A. 14.58(1) et seq. [repealed March 1995]

New Act: Article II, Chapter 1, Part 55 (Air Pollution Control) of the Natural Resources and Environmental Protection Act, P.A. 451 of 1994. [effective March 1995]

Regulations: Michigan Air Pollution Control Commission General Administrative Rules, as amended; M.A.C. R336.1101 et seq.

In 1965, the Michigan state legislature addressed air pollution problems with the passage of the *Michigan Air Pollution Act*, P.A. 348 of 1965, as amended, (M.C.L.A. § 336.11 to 336.36). This Act outlined the framework of the Michigan air programs such as permits, emission limitations and standards, compliance and enforcement issues, and variances. In March 1995, the Act was codified into the Article II, Chapter 1, Part 55 (Air Pollution Control) of the *Michigan Natural Resources and Environmental Protection Act (NREPA)*, P.A. 451 of 1994 (Appendices B and C). The AQD has responsibility for implementation of Part 55 of the Act.

The Act is accompanied by a set of *Administrative Rules for Air Pollution Control* (Michigan Air Pollution Control Commission General Rules, M.A.C. R 336.1101 et seq.) which implements provisions of the Act (Appendix F). The Rules provide details on the air permit program (Permits to Install and ROPs), emissions limitations, operating requirements, sampling and monitoring, and annual reporting. The Act is divided into sections and subsections which are referenced by section number. The Rules have a more complicated numbering system (e.g., Rule 206 = R 336.1206; Rule 1001 = R336.2001).

The 1965 Act was amended numerous times to reflect the changes in federal air quality legislation and changes in the direction of the Michigan air program. An applicant for an air permit should always consult the most recent version of the Act and Rules. Additionally, the AQD periodically issues operational memoranda to help with the interpretation of Rules and to communicate policy information. These memos along with other MDEQ correspondence are found in the *AQD Guidance* section of this Manual.

Program Authority

The AQD administers the air pollution control program. The AQD Chief, or delegated person in the division, is the authorized agent who can issue Permits to Install, grant waivers of approval pursuant to Rule 202 of the *Rules*, revise condition of Permits to Install and ROPs, and void permits. There is also authorization to conduct public hearings, enter into consent orders, enter into stipulations for air pollution control, prepare and serve complaints, issue notices of violation, and conduct numerous other activities.

The AQD performs investigative, technical, scientific, and other services. The AQD develops plans to meet NAAQS, ensures compliance with state and federal laws regulating air pollution, and evaluates permit applications for new or modified sources of air pollution. Lansing staff within the AQD are assigned to various sections including:

- Permits (Chemical Processes, General Manufacturing, Thermal Processes)
- Field Operations
- Air Quality Evaluation (Toxics, Strategy Development, Emissions Reporting and Assessment, and Air Monitoring)
- Enforcement

Compliance inspections and ROP responsibilities are important functions of the district offices.

Permits

Michigan has its own Permit to Install program as well as the ROP program. An applicant for a Permit to Install will work closely with the Permits Section in Lansing and, to some extent, with the district offices. The basis for the Permit to Install program is Rule 201 of the *Rules* which is described in detail in the *Michigan Guide to Air Use Permits to Install* section of this manual.

The ROP program, as mandated by the CAA Amendments of 1990, is implemented by the AQD district offices. This program is described in detail in the *Renewable Operating Permits* section of this manual.

Limits on Emissions

The *Rules* address the control of various pollutants as articulated in *Part 3 - Emission limitations and prohibitions for particulate matter*, *Part 4 - Emission limitations and prohibitions for sulfur-bearing compounds*, *Parts 6 and 7 - Emission limitations and prohibitions for Volatile Organic Compounds-VOCs*, *Part 8 - Emission limitations and prohibitions for oxides of nitrogen*, and *Part 9 - Emission limitations and prohibitions - miscellaneous*. An example of an emission limitation is found in Rule 331 (R 336.1331) which limits particulate emissions from municipal incinerators to 0.30 pounds particulate/1,000 pounds of gas.

Additionally, limits on emissions are determined through the permit process. Rule 201 states that if a contaminant may be emitted, a "Permit to Install" is required. The Permit to Install may have special conditions that address limitations on emissions. Rules 278 through Rule 290 list sources that are exempt from the requirement to obtain a Permit to Install.

The AQD may require additional analyses for those processes having the potential to violate Rule 901. Examples of conditions warranting such analyses include excessive odors, soiling, visual obstructions (e.g., fogging) or adverse vegetative impact. Guidance on addressing odors is given in the *Air Quality Dispersion Modeling* chapter of this manual. In those instances where analyses are deemed necessary to address soiling, visual obstructions or vegetative impacts, the AQD should be consulted prior to the submittal of the permit application.

Air Toxics

Emissions of toxic air contaminants or TACs in Michigan are controlled under two sets of regulations: (1) state administrative rules and (2) the federal Clean Air Act, as amended. The Michigan air toxics rules, which became effective in 1992, were last revised in 1999. Specifically, a TAC is any contaminant for which there is no NAAQS and which is, or may become, harmful to public health or the environment when present in the outdoor atmosphere in sufficient quantities and duration. Rule 120 (e) and (f) lists 41 exemptions to this definition. The Michigan definition of TACs differs from the federal definition of hazardous air pollutants which is limited to a list of 188 specific compounds and compound classes. However, state TAC rules apply only to new or modified sources requiring a new Permit to Install, while the federal NESHAP and MACT limits apply to new and existing sources of HAPS.

Rule 224 applies to all new or modified sources of air pollution that must obtain a Permit to Install under Michigan regulations. Rule 224 requires that all TAC emissions for new and modified sources (not existing sources) be controlled by the application of best available control technology for toxics, or T-BACT, unless the processes meet BACT, LAER, or MACT requirements or emit small amounts of low-potency carcinogens or non-carcinogens with relatively low toxicity.

Rule 225 also prohibits the emission of a toxic air contaminant at a level that would cause a predicted ambient impact in excess of a contaminant specific health based screening level. There are three types of screening levels: the initial threshold screening level for a non-carcinogen, and the initial and secondary risk screening levels for a carcinogen. Rule 226 describes exemptions from the screening level requirements. Rule 227 explains how one demonstrates compliance with the threshold and risk screening levels. The AQD maintains a list of T-BACT determinations, threshold screening levels, initial and secondary risk screening levels, and related information.

The exemptions from T-BACT and screening level review leave very limited overlap between Michigan's air toxics rules and CAA, NESHAP, and MACT requirements. The rules provide assessment of health risks, while this component of the CAA program has yet to occur. When CAA residual risk requirements are implemented, these will substitute for the toxic rule health risk assessments.

Michigan's air toxics rules involve two analyses: T-BACT and impact analysis. The rules require new or modified sources of air pollution to undergo an evaluation for emission of TACs. Sources of emissions of TACs are required to evaluate and use the best economically feasible, technologically advanced air pollution controls (T-BACT). This means that, as new technology progresses and new and better air pollution controls continue to be developed, each new or modified source will be required to consider the newest and best technology.

Second, MDEQ engineers review the permit application to determine the amount of TACs the facility might possibly emit after the best controls are installed. The facility is required to limit its toxic air emissions to amounts at or below those deemed safe for each TAC and consistent with control technology determination.

Summary

State air quality agencies implement state and federal programs through a blend of state laws, the CAA, and state and federal regulations designed to prevent and/or correct impacts on Michigan's citizens. The MDEQ, through the AQD, has primary responsibility for implementation of the Act and its rules. The State of Michigan has in place a permit program that includes two types of permits: the state Permit to Install and the Renewable Operating Permit issued for five years. Along with emissions limitations for certain criteria pollutants, Michigan also has rules to control toxic air contaminants from new and modified sources.

Appendix A
Federal Clean Air Act
The Clean Air Act Amendments of 1990
Summary Materials

Title I: Provisions for Attainment and Maintenance of National Ambient Air Quality Standards

Although the Clean Air Act (CAA) of 1977 brought about significant improvements in our nation's air quality, the urban air pollution problems of ozone (smog), carbon monoxide (CO) and particulate matter (PM-10) persisted. In 1996, over 46 million Americans lived in cities which were out of attainment with the public health standards for ozone.

The most widespread and persistent urban pollution problem is ozone. The causes of this and the lesser problem of carbon monoxide (CO) and particulate matter (PM-10) pollution in our urban areas are largely due to the diversity and number of urban air pollution sources. One component of urban smog (hydrocarbons) comes from automobile emissions, petroleum refineries, chemical plants, dry cleaners, gasoline stations, house painting, and printing shops. Another key component (nitrogen oxides) comes from the combustion of fuel for transportation, utilities and industries.

While there are other reasons for continued high levels of ozone pollution, such as growth in the number of stationary sources of hydrocarbons and continued growth in automobile travel, perhaps the most telling reason is that the remaining sources are generally those that emit less than 100 tons of hydrocarbons per year. These sources, such as auto body shops and dry cleaners, may individually emit less than 10 tons per year, but collectively emit many hundreds of tons of pollution.

The CAA Amendments of 1990 created a new, balanced strategy for the nation to attack the problem of urban smog. Overall, the law revealed the Congress' high expectations of the states and the federal government. While it gave states more time to meet the air quality standard (i.e. up to 20 years for ozone in Los Angeles), it also required states to make constant formidable progress in reducing emissions. It required the federal government to reduce emissions from cars, trucks, and buses; from consumer products such as hair spray and window washing compounds; and from ships and barges during loading and unloading of petroleum products. The federal government also had to develop the technical guidance that states needed to control stationary sources.

The CAA Amendments of 1990 addressed the urban air pollution problems of ozone (smog), carbon monoxide (CO), and particulate matter (PM-10). Specifically, it clarified how areas were designated and redesignated "attainment." It also allowed the USEPA to define the boundaries of "nonattainment" areas, which are geographical areas whose air quality does not meet federal air quality standards designed to protect public health.

The 1990 CAA Amendments also established additional provisions defining when and how the federal government can impose sanctions on areas of the country that have not met certain conditions.

For the pollutant, ozone, the 1990 Amendments established nonattainment area classifications ranked according to the severity of the area's air pollution problems. These classifications are marginal, moderate, serious, severe and extreme. The USEPA assigned each 1-hour nonattainment area one of these categories, thus triggering varying requirements the area must comply with in order to meet the 1-hour ozone standard. Designations and classifications for 8-hour ozone nonattainment areas were announced April 15, 2004.

As mentioned, nonattainment areas have to implement different control measures depending upon their classification. Marginal areas, for example, are the closest to meeting the standard. They are required to conduct an inventory of their ozone-causing emissions and institute a permit program. Nonattainment areas with more serious air quality problems must implement various control measures. The worse the air quality, the more controls areas have to implement.

The 1990 Amendments also established similar programs for areas that do not meet the federal health standards for the pollutants carbon monoxide and particulate matter. Areas exceeding the standards for these pollutants are divided into "moderate" and "serious" classifications. Depending upon the degree to which they exceed the carbon monoxide standard, areas are required to implement programs introducing oxygenated fuels and/or enhanced emission inspection programs, among other measures. Depending upon their classification areas exceeding the particulate matter standard have to implement either reasonably available control measures (RACM) or best available control measures (BACM), among other requirements.

Title II: Provision Relating to Mobile Sources

While motor vehicles built today are 95% less polluting than those built in 1970s, cars and trucks still account for almost half the emissions of the ozone precursors VOCs and NO_x and 79% of the CO emissions nationwide. The principal reason for this problem is the rapid growth in the number of vehicles on the roadways and an annual increase of 2%-3% for total miles driven. The growth has offset a large portion of the emission reductions gained from motor vehicle controls.

In view of the unforeseen growth in automobile emissions in urban areas combined with the serious air pollution problems in many urban areas, the Congress made significant changes to the motor vehicle provisions in the CAA.

The CAA Amendments of 1990 established tighter pollution standards for emissions from automobiles and trucks. These Tier I standards reduced tailpipe emissions of hydrocarbons, and nitrogen oxides on a phased-in basis from 1994-1996 model years. Automobile manufacturers are also required to reduce vehicle emissions resulting from the evaporation of gasoline during refueling.

The National Low Emission Vehicle (NLEV) phased-in from 1999-2001 further reduced emissions by 70% from 1996 levels. Tier II emission standards, phased in from 2004-2009, will provided a 77% NO_x reduction for cars, and an 86% reduction for light-duty trucks.

Heavy-duty diesel emission standards, phased in from 2007-2010 will provide a 90% Particulate Matter and 95% HC reduction.

Fuel standards will also be tightened. Reductions in gasoline volatility and sulfur content of fuel is required. New programs requiring cleaner ("reformulated" gasoline) was initiated in 1995 for nine cities with the worst ozone problems. Other cities may "opt in" to the reformulated gasoline program. Higher levels (2.7%) of alcohol-based oxygenated fuels are produced and sold during the winter months in areas that exceed the federal standard for carbon monoxide.

Title III: Air Toxics

Toxic air pollutants are those pollutants that are hazardous to human health or the environment but are not specifically covered under another portion of the CAA. These pollutants are typically carcinogens, mutagens, and reproductive toxins. The CAA Amendments of 1977 failed to achieve substantial reductions of the emission of these very threatening substances. In fact, over the history of the air toxics program only seven pollutants had been regulated.

The toxic air pollution problem is widespread. Information generated from the Superfund "Right to Know" rule (SARA Section 313) indicates that more than 2.7 billion pounds of toxic air pollutants are emitted annually in the United States. USEPA studies indicate that exposures to such quantities of air toxics may result in 1000 to 3000 cancer deaths each year.

The CAA Amendments of 1990 offered a comprehensive plan for achieving significant reductions in emissions of hazardous pollutants from major nonpoint sources. Industry reports in 1987 suggested that an estimated 2.7 billion pounds of toxic air pollutant were emitted into the atmosphere, contributing to approximately 300 -1500 cancer fatalities annually. The 1990 Amendments improved the USEPA's ability to address this problem effectively and dramatically accelerated progress in controlling major toxic air pollutants.

Title III includes a list of 189 toxic air pollutants of which emissions must be reduced. The USEPA published a list of source categories that emit certain levels of these pollutants. The list of source categories includes: 1) major sources emitting 10 tons/year of any one, or 25 tons/year of any combination of those pollutants, and 2) area sources (smaller sources, such as dry cleaners).

The USEPA issued "Maximum Achievable Control Technology" (MACT) standards for each listed source category according to a prescribed schedule. These standards are based on the best demonstrated control technology or practices within the regulated industry. The USEPA issued the standards for forty source categories within two years of passage of the new law. The remaining source categories were controlled according to a schedule that ensured that all controls would be achieved within 10 years of enactment. Companies that voluntarily reduced emissions according to certain conditions could get a six year extension from meeting MACT requirements.

Eight years after MACT is installed on a source, the USEPA must examine the risk level remaining at the regulated facilities and determine whether additional controls are necessary to reduce unacceptable residual risk.

The 1990 Amendments also established a Chemical Safety Board to investigate accidental releases of extremely hazardous chemicals. Further, these amendments required the USEPA to issue regulations controlling air emissions from municipal, hospital and other commercial and industrial incinerators.

- ⑤ List of Pollutants and Source Categories: The CAA Amendments of 1990 listed 189 hazardous air pollutants. One year after its enactment, the USEPA listed source categories (industries) that emit one or more of the 189 pollutants. Then the USEPA published a schedule for regulating of the listed source categories.
- ⑤ Maximum Achievable Control Technology (MACT): MACT regulations are emission standards based on the best demonstrated control technology and practices in the regulated industry. MACT for existing sources is as stringent as the average control efficiency, or the best controlled 12% of similar sources excluding sources which have achieved the LAER within the 18 months prior to proposal or 30 months prior to promulgation. MACT for new sources is as stringent as the best controlled similar source. For all listed major point sources, the USEPA promulgated MACT standards - 40 source categories plus coke ovens within 2 years, 25% of the remainder of the list within 4 years, 25% within 7 years, and 50% within 10 years.
- ⑤ Residual Risk: Eight years after MACT standards are established (except for those established two years after enactment), standards to protect against the residual health and environmental risks remaining are promulgated, if necessary. The standards would be triggered if more than one source in a category exceeded a maximum individual risk of cancer of 1 in 1 million. These residual risk regulations would be based on current CAA requirements, which specify that standards must achieve an "ample margin of safety."
- ⑤ Accidental Releases: The 1990 Amendments required standards to prevent against accidental release of toxic chemicals. The USEPA established a list of 100 toxic chemicals covered by these standards. All facilities with these chemicals on site in excess of the threshold quantities are subject to the regulations which would include hazard assessments and risk management plans. An independent chemical safety board is established to investigate major accidents, conduct research, and promulgate regulations for accidental release reporting.
- ⑤ Other issues: A study of area source emissions and a strategy to reduce the cancer incidence from these emissions by 75% was required. Source categories accounting for 90% of the emissions of the 30 most hazardous area source pollutants were regulated. Coke ovens could receive an extension of the residual risk standards. Air toxics regulations of utilities were based on the results of toxic emissions studies. A study of deposition to the Great Lakes, Lake Champlain, Chesapeake Bay and coastal waters was used to determine whether additional regulation was needed. Regulations were

required for all types of municipal waste combustors with an exclusion for facilities which burn 30% or less municipal waste.

Title IV: Acid Deposition Control

Acid precipitation occurs when sulfur dioxide and nitrogen oxide emissions are transformed in the atmosphere and return to the earth in rain, fog or snow. Approximately 20 million tons of SO₂ are emitted annually in the United States, mostly from the burning of fossil fuels by electric utilities. Acid rain damages lakes, harms forests and buildings, contributes to reduced visibility, and is suspected of damaging health.

The CAA Amendments of 1990 reduced the sulfur dioxide (SO₂) emissions from 1980 levels. To achieve this, the USEPA allocated allowances in two phases permitting utilities to emit one ton of sulfur dioxide for each allowance. The first phase, which was effective January 1, 1995, required 110 power plants to reduce their emissions to a level equivalent to the product of an emissions rate of 2.5 lbs of SO₂/mmBtu x an average of their 1985-1987 fuel use. Plants that used certain control technologies to meet their Phase I reduction requirements could have received a two year extension of compliance until 1997. The 1990 Amendments also allowed for a special allocation of 200,000 annual allowances per year each of the 5 years of Phase I to power plants in Illinois, Indiana and Ohio.

The second phase, which was effective January 1, 2000, required approximately 2000 utilities to reduce their emissions to a level equivalent to the product of an emissions rate of 1.2 lbs of SO₂/mmBtu x the average of their 1985-1987 fuel use. In both phases, affected sources were required to install systems that continuously monitor emissions in order to track progress and assure compliance.

The 1990 Amendments allowed utilities to trade allowances within their systems and/or buy or sell allowances to and from other affected sources. Each source must have sufficient allowances to cover its annual emissions. If not, the source is currently subject to a \$2,774/ton excess emissions fee (\$2,000, periodically adjusted for inflation) and a requirement to offset the excess emissions in the following year.

Nationwide, plants that emitted SO₂ at a rate below 1.2 lbs/mmBtu were able to increase emissions by 20% between a baseline year and 2000. Bonus allowances were distributed to accommodate growth by units in states with a statewide average below 0.8 lbs/mmBtu. Plants experiencing increases in their utilization in the last five years also received bonus allowances. 50,000 bonus allowances per year are allocated to plants in 10 midwestern states that made reductions in Phase I. Plants that repowered with a qualifying clean coal technology could receive a 4 year extension of the compliance date for Phase II emission limitations.

The 1990 Amendments also included specific requirements for reducing emissions of nitrogen oxides.

Title V: Permits

The CAA Amendments of 1990 introduced an operating permits program modeled after a similar program under the National Pollution Elimination Discharge System (NPDES) law. The purpose of the operating permits program is to ensure compliance with all applicable requirements of the CAA and to enhance the USEPA's ability to enforce the Act.

This program greatly strengthened enforcement of the CAA. It enhanced air quality control in a variety of ways. First, adding such a program updated the CAA, making it consistent with other environmental statutes. The Clean Water Act, the Resource Conservation and Recovery Act, and the Federal Insecticide, Fungicide, and Rodenticide Act all require permits. The 1977 Clean Air laws also requires a construction permit for certain pollution sources, and about 35 states have their own laws requiring operating permits.

The operating permits program clarifies and makes more enforceable a source's pollution control requirements. Previously, a source's pollution control obligations may have been scattered throughout numerous hard-to-find provisions of state and federal regulations, and in many cases, the source was not required under the applicable State Implementation Plan to submit periodic compliance reports to the USEPA or to the states. The permit program ensures that all of a source's obligations with respect to its pollutants will be contained in one permit document and that the source will file periodic reports identifying the extent to which it has complied with those obligations. Both of these requirements greatly enhance the ability of Federal and state agencies to evaluate its air quality situation.

In addition, the operating permits program provided a ready vehicle for states to assume administration, subject to federal oversight, of significant parts of the air toxics program and the acid rain program. And, through the permit fee provisions discussed below, the program augments a state's resources to administer pollution control programs by requiring sources of pollution to pay their fair share of the costs of a state's air pollution program.

Under the 1990 Amendments, the USEPA had to issue program regulations within one year of enactment. Within three years of enactment, each state had to submit to the USEPA a permit program meeting these regulatory requirements. After receiving the state submittal, the USEPA had one year to accept or reject the program. The USEPA had to levy sanctions against a state that does not submit or enforce a permit program.

Each permit issued to a facility is for a fixed term of up to five years. The law established a permit fee whereby the state collects a fee from the permitted facility to cover reasonable direct and indirect costs of the permitting program.

All sources subject to the permit program must submit a complete permit application within 12 months of the source becoming subject to the program. The state permitting authority must determine whether or not to approve an application within 18 months of the date it receives the application.

The USEPA has 45 days to review each permit and to object to permits that violate the CAA. If the USEPA fails to object to a permit that violates the CAA or the implementation plan, any person may petition the USEPA to object within 60 days following the USEPA's 45-day review period, and the USEPA must grant or deny the permit within 60 days. Judicial review of the USEPA's decision on a citizen's petition can occur in the federal court of appeals.

- ⑤ Within three years of enactment, states had to develop operating permit programs. The USEPA reviewed the states' programs based on regulatory guidelines that the USEPA issued within one year of enactment.
- ⑤ Operating permits apply to major sources covered under Title I, as well as sources covered by other titles of the CAA.
- ⑤ All sources subject to the program must submit permit applications to the state within one year of the effective date (i.e., date of USEPA approval) of the state program. The state must have established a schedule for acting on initial permit applications which assured that at least a third of these submitted applications were acted upon annually for 3 years.
- ⑤ The state issues permits for a term of up to five years. Permits include all CAA requirements applicable to the source. They also include a schedule of compliance and applicable monitoring and reporting requirements.
- ⑤ Sources pay permit fees to cover the costs of the permitting program.
- ⑤ The USEPA must veto a permit if it does not comply with any applicable CAA requirement.
- ⑤ The public may sue to compel the USEPA to perform a nondiscretionary duty if the USEPA fails to veto a permit that does not comply with the Act. Such cases are reviewable in the federal court of appeals.
- ⑤ Once issued, the permit replaces the otherwise applicable requirements specifically identified in the permit, but the USEPA may require that the permit be reopened for cause. A permit with a term of 3 or more years must be reopened if new requirements applicable to the source are promulgated.

Title VI: Stratospheric Ozone and Global Climate Protection

The CAA Amendments of 1990 built on the market-based structure and requirements contained in the USEPA's regulations to phase out the production of substances that deplete the ozone layer. The law required a complete phase-out of CFCs and halons with interim reductions and some related changes to the existing Montreal Protocol, revised in June 1990.

Under these provisions, the USEPA listed all regulated substances along with their ozone depletion potential, atmospheric lifetimes and global warming potentials within 60 days of enactment.

In addition, the USEPA ensured that Class I chemicals were phased out on a schedule similar to that specified in the Montreal Protocol: CFCs, halons, and carbon tetrachloride by 2000; methyl chloroform by 2002, but with more stringent interim reductions. Class II chemicals (HCFCs) will be phased out by 2030. Regulations for Class I chemicals were required within 10 months, and Class II chemical regulations were required by December 31, 1999.

Title VI also required the USEPA to publish a list of safe and unsafe substitutes for Class I and II chemicals and to ban the use of unsafe substitutes.

The law required nonessential products releasing Class I chemicals to be banned within two years of enactment. In 1994, a ban went into effect for aerosols and non-insulating foam using Class II chemicals, with exemptions for flammability and safety. Regulations for this purpose were required within one year of enactment and became effective two years afterwards.

Title VII: Provisions Relating to Enforcement

The CAA Amendments of 1990 contained a broad array of authorities to make the law more readily enforceable, thus bringing it up to date with the other major environmental statutes.

The USEPA was given new authorities to issue administrative penalty orders up to \$200,000 and field citations up to \$5000 for lesser infractions. Civil judicial penalties were enhanced. Criminal penalties for knowing violations were upgraded from misdemeanors to felonies, and new criminal authorities for knowing and negligent endangerment were established.

In addition, sources must certify their compliance, and the USEPA has authority to issue administrative subpoenas for compliance data. The USEPA is also authorized to issue compliance orders with compliance schedules of up to one year.

The citizen suit provisions were also revised to allow citizens to seek penalties against violators, with the penalties going to a U.S. Treasury fund for use by the USEPA for compliance and enforcement activities. The government's right to intervene was clarified and citizen plaintiffs are required to provide the United States with copies of pleadings and draft settlements.

Other Titles

The CAA Amendments of 1990 continued the federal acid rain research program and contained several new provisions relating to research, development and air monitoring. They also contained provisions to provide additional unemployment benefits through the Job Training Partnership Act to workers laid off as a consequence of compliance with the CAA. The CAA also contained provisions to improve visibility near National Parks and other parts of the country.

Title VIII - Miscellaneous Provisions

Outer Continental Shelf (OCS): A program was developed to control air pollution from sources on the Outer Continental Shelf. Sources within 25 miles of shore are required to meet the same standards as onshore areas. Exemptions are possible if the Administrator finds that compliance is technologically infeasible or will cause an unreasonable threat to health and safety. States adjacent to OCS sources may implement and enforce requirements if approved by the Administrator. Within 3 years of enactment, the Secretary of the Interior had to conduct a study of areas adjacent to Texas, Louisiana, Mississippi, and Alabama, examining the impacts of emissions from Outer Continental Shelf activities.

A program was established to monitor and improve air quality in regions along the border between the United States and Mexico. This program was effective through July 1, 1995. Monitoring was conducted to determine the sources of pollutants for which NAAQS are established. The information was used to aid in the process of attainment for sources out of compliance with the NAAQS. Each year the Administrator was required to give an annual

report to Congress concerning the status of the program and the progress of reaching attainment in border regions.

Title IX - Clean Air Research

- ⑤ Monitoring and Modeling: The Act required that research include improved methods and techniques for measuring individual air pollutants and complex mixtures, and for addressing urban and regional ozone. The Act also required maintenance of a national monitoring network to assess the status and trends of air emissions, deposition, air quality, surface water quality, forest conditions and visibility.
- ⑤ Health Effects: The USEPA studied the short and long-term health effects associated with exposure to air pollutants and developed methods to assess risks from these pollutants. An interagency task force, led by the USEPA, coordinated the research. The USEPA was required to prepare an environmental health assessment for all listed hazardous air pollutants.
- ⑤ Ecosystem: The Act required studies for improving our understanding of ecosystem effects from individual and multiple air pollutants, including the effects of air pollution on water quality, forests, biological diversity, and other terrestrial and aquatic systems exposed to air pollutants.
- ⑤ Accidental Releases: The Act required improvements in predictive models and response technology for accidental releases of dense gases. The USEPA was required to oversee the research using the Department of Energy Liquefied Gaseous Fuels Spill Test Facility for the experimental work.
- ⑤ Pollution Prevention and Emissions Control: The CAA required research to develop technologies and strategies for air pollution prevention from stationary and area sources.
- ⑤ Acid Precipitation Research Program: Continuation of research by an intra-agency task force. It will review the status of research activities conducted to date and submit to Congress a revised plan that identifies key research gaps and establishes a program to address current and future research priorities. The USEPA is required to sponsor specialized acid deposition studies and to have the results of its research efforts included in Task Force reports.
- ⑤ Clean alternative fuels: The USEPA was directed to identify, characterize and predict air emissions and other potential environmental effects associated with alternative fuels. The USEPA is required to determine the risks and benefits to human health and the environment relative to those from gasoline.
- ⑤ Other Studies: The CAA coordinated research with appropriate federal agencies and studied control technologies used in other industrialized countries, including a six million dollar research effort on the effects of acid deposition in waters in the Adirondack region.

Title XI - Clean Air Employment Transition Assistance

Job Training Partnership Act (JTPA): The CAA amended Title III of the Job Training Partnership Act. An additional \$50 million per year for 1991-1995 was allocated to JTPA Title III to assist dislocated workers, the majority of whom will likely be high sulfur coal miners, dislocated because of implementation of the acid rain title.

- ⑤ Funding: Ninety-five (95%) percent of the funding was to go to the worker assistance programs and the remaining five percent will be used to administer the title. The Department of Labor will administered the program. Regulations had to be developed within 180 days of the bill's passage.
- ⑤ Benefits: In addition to the benefits already available to dislocated workers through JTPA Title III, people were able to receive job search allowance, relocation assistance, needs related payments and extended monetary assistance. Extended monetary assistance was available to dislocated workers who had exhausted their unemployment insurance benefits, as long as they were in a qualified training or educational program.
- ⑤ Difference from Prior Program: Previously, JTPA Title III could provide the benefits mentioned above. But, because of constraints in the way the program was operated, these benefits were not provided frequently. Title XI ensured that dislocated workers, if eligible, received benefits.

The intent for providing further monetary assistance in the form of needs related payments, was so that workers who were adjusting to a career change and were enrolled in training or educational programs that exceeded the period of time for which they received Unemployment Insurance (UI), were able to complete training or education with further monetary assistance.

- ⑤ Eligibility: Payments were awarded to a dislocated worker, if he or she was enrolled in training or an educational program, and either he or a member of his or her family had an income level below the state of poverty income level. Payments were be equivalent to either the amount a person was receiving from their UI, or enough to bring the person up to the poverty level.

Source: *The Clean Air Act Amendments of 1990 Summary Materials*, USEPA,
November 15, 1990.

Appendix B.
Natural Resources and Environmental Protection Act
Act No. 451, P.A. of 1994

Approved January 18, 1995
S.B. No. 257 Version

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Air Programs**

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Administrative Rules for Air Pollution Control

The Michigan administrative rules that were first promulgated under Act 348, the Air Pollution Act, became effective on August 15, 1967. The Michigan *Administrative Rules for Air Pollution Control* are regulations developed by the Air Quality Division that implement or apply Act 348. Act 348 is now Part 35 of the NREPA. Just as Act 348 has been amended to implement new federal requirements, so have the administrative rules. The Michigan *Administrative Rules for Air Pollution Control* are divided into "parts." The bulk of the regulations are outlined in the following parts:

Part 1 - General Provisions - contains definitions of key terms used throughout the rules. Referring back to the definitions greatly increases one's understanding of the rules.

Part 2 - Air Use Approval - requires a "Permit to Install" prior to the installation or modification of a source of air pollution. Certain equipment and activities are exempt from the Permit to Install requirements. The Part 2 rules contain the requirements for sources locating in areas of the state in violation of National Ambient Air Quality standards and the requirements for sources emitting toxic air contaminants. The Part 2 rules have been revised to include the requirements of the Renewable Operating Permit program as mandated by Title V of the Clean Air Act.

KEY RULES:	Rule 201	Permits to install
	Rule 207	Denial of Permit to Install
	Rule 208a	Limiting potential to emit
	Rules 210-218	Renewable operating permit program
	Rule 220	Construction of Major Sources in nonattainment areas
	Rule 224 - 230	Air toxics
	Rules 278 - 290	Permit exemptions

Part 3 - Particulate Matter - establishes particulate emission limitations for various process equipment. Open burning and the density of visible emissions from a vent or smokestack are regulated. Certain facilities may be required to develop plans to control fugitive dust emissions.

Part 4 - Sulfur Bearing Compounds - establishes sulfur dioxide emission limitations on boilers and other fuel burning equipment. The sulfur content of fuels, such as coal and fuel oil, must fall within prescribed percentages.

Part 6 - Existing Sources of Volatile Organic Compound Emissions - establishes volatile organic emission limitations and requirements for "existing" sources. The definition of "existing" source is dependent upon the type of process and quantity of its volatile organic compound emissions. Reasonably available control technology (RACT) applies to Part 6 sources.

KEY RULES:	Rule 601	Defines existing sources of VOCs
	Rule 602	General provisions for existing sources of VOCs

Part 7 - New Sources of Volatile Organic Compound Emissions - establishes volatile organic emission limitations and requirements for "new" sources. A "new" source is defined as any process placed in service on or after July 1, 1979, or for which an application for a Permit to Install is made on or after July 1, 1979. Best available control technology (BACT) applies to Part 7 sources.

KEY RULES: Rule 701 Defines new sources of VOCs
 Rule 702 General provisions for new sources of VOC emissions

Part 8 - Oxides of Nitrogen - Establishes oxides of nitrogen emission limitations and requirements on large boilers and other large combustion sources.

Part 9 - Miscellaneous - contains requirements that could pertain to any facility, regardless of the type(s) of air contaminant emitted. Air contaminants cannot be emitted in quantities that unreasonable interference with the comfortable enjoyment of life and property. Businesses can be required to prepare written plans that will prevent, detect, and correct malfunctions of equipment resulting in the exceedance of an emission standard.

KEY RULE: Rule 901 No source of air contaminants shall interfere with the right to clean and odor free air.

Part 10 - Intermittent Testing and Sampling - provides the Michigan Department of Environmental Quality the authority to require facilities to quantify their air emissions to verify compliance with emission standards. The testing must be performed in accordance with established testing methods.

Part 11 - Continuous Emission Monitoring - requires certain large emission sources to operate continuous emission monitoring equipment to verify compliance with applicable emission standards.

Part 12 - Emission Averaging and Emission Reduction Credit Trading - outlines Michigan's voluntary emission averaging and emission reduction credit trading program.

Part 13 - Air Pollution Episodes - this part was rescinded May 28, 1997.

Part 14 - Clean Corporate Citizen Program - outlines Michigan's voluntary Clean Corporate Citizen (C3) Program. This program allows sources that have demonstrated environmental stewardship and a strong environmental ethic to receive public recognition and air quality permit processing benefits. Originally, Part 14 contained all rules administering the C3 program. In 2000, the portions describing the procedures and criteria for becoming a C3 were moved to R324.1501-324.1511 as these functions are carried out by the Environmental Science and Services Division. Remaining in Part 14 are the descriptions and criteria for approval of air permit options available to sources with C3 designation.

Part 16 - Organization, Operation, and Procedures - identifies the procedures a person must follow to request a declaratory ruling regarding a statute, rule, order, or permit administered by the department. It includes a description of the time frames for the department to respond to such requests.

Part 17 - Hearings - outlines the process for consideration of filings for contested case hearings concerning unilateral orders and administrative fines, ROPs, and fee amounts.

Appendix F

STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES
Performance Standards Promulgated as of January, 2000

SOURCE	40 CFR 60 SUBPART	REGULATED POLLUTANTS	EFFECTIVE DATE
General Provisions	A		
Adoption and Submittal of State Plans for Designated Facilities	B		
Municipal Waste Combustor Units with capacity > 225 megagrams/day (250 tons/day)	Ca (See Ea)	metals (PM), organics (dioxan/furan) and acid gases (SO ₂ and HCL)	construction, modification, or reconstruction commenced on or before 12/20/89
Municipal Waste Combustor Unit located within a municipal waste combustor plant with a plant capacity > 35 megagrams/day	Cb (See Eb)	PM, cadmium, lead, mercury, organics (dioxan/furan), acid gases (SO ₂ and HCL), and NO _x	construction commenced on or before 9/20/94
Municipal Solid Waste Landfill	Cc (See WWW)	NMOC	construction, modification, or reconstruction commenced before 5/30/91
Sulfuric Acid Production Unit	Cd (See H)	sulfuric acid mist	construction or modification commenced after 8/17/71
Hospital/Medical/Infectious Waste Incinerators	Ce	PM, cadmium, lead, mercury, organics (dioxan/furan), acid gases (SO ₂ and HCL), and NO _x	Construction commenced on or before 6/20/96
Fossil-Fuel Fired Steam Generators > 250 MMBtu/hr	D	PM, NO _x , SO ₂	construction or modification commenced after 8/17/71
Electric Utility Steam Generators > 250MMBtu/hr	Da	PM, NO _x , SO ₂	construction or modification commenced after 09/18/78
Industrial-Commercial-Institutional Steam Generators > 100 MMBtu/hr	Db	PM, NO _x , SO ₂	construction, modification, or reconstruction commenced after 06/19/84
Small Industrial-Commercial-Institutional Steam Generators > 10 MMBtu but < 100 MMBtu/hr	Dc	PM, SO ₂	construction, modification, or reconstruction commenced after 06/09/89
Solid Waste Incinerator of more than 50 tons/day charging rate	E	PM	construction or modification commenced after 08/17/71
Municipal Waste Combustor Unit with capacity > 225 megagrams/day (250 tons/day)	Ea (See Ca)	metals (PM), organics (dioxin/furans) acid gases (SO ₂ and HCL), and NO _x	construction commenced after 12/20/89 and on or before 9/20/94; and modification or reconstruction commenced after 12/20/89 and on or before 6/19/96
Municipal Waste Combustor Unit located within a municipal waste combustor plant with a plant	Eb (See Cb)	PM, cadmium, lead, mercury, acid gases (SO ₂ and HCL),	construction commenced after 9/20/94; or reconstruction or modification after 6/19/96

capacity > 35 Megagrams /day		organics (dioxin/furans) and NO _x	
SOURCE	40 CFR 60 SUBPART	REGULATED POLLUTANTS	EFFECTIVE DATE
Hospital/Medical/Infectious Waste Incinerators	Ec	PM, cadmium, lead, mercury, organics (dioxin/furan), acid gases (SO ₂ and HCL), and NO _x	construction commenced after 6/20/96; or modification after 3/16/98
Portland Cement Plants	F	PM	construction or modification commenced after 08/17/71
Nitric Acid Production Units	G	NO _x (NO ₂)	construction or modification commenced after 08/17/71
Sulfuric Acid Production Units	H (See Cd)	Acid Mist (H ₂ SO ₄) and SO ₂	construction or modification commenced after 8/17/71
Hot Mix Asphalt Facilities	I	PM	construction or modification commenced after 6/11/73
Petroleum Refinery Oil: Fluid Catalytic Cracking Unit Catalyst Regenerators Fuel Gas Combustion Device	J	PM, CO, and SO ₂ H ₂ S	construction or modification commenced after 6/11/73 construction or modification commenced after 6/11/73
Claus Sulfur Recovery Plant except Claus plants of 20 long tons per day or less		Reduce sulfur compounds and SO ₂	construction or modification commenced after 10/4/76
Storage Vessels for Petroleum Liquids having a capacity >40,000 gallons but not <65,000 gallons	K	VOC	construction or modification commenced after 3/8/74 and before 5/19/78
Storage Vessels for Petroleum Liquids having a capacity >65,000 gallons		VOC	construction or modification commenced after 06/11/73 and before 05/19/78
Storage Vessels for Petroleum Liquids having a capacity > 40,000 gallons	Ka	VOC	construction commenced after 5/18/78
Volatile Organic Liquid Storage Vessels having a capacity > or equal to 40 cubic meters	Kb	VOC	construction, modification, or reconstruction commenced after 7/23/84
Secondary Lead Smelters: pot furnaces of more than 550 pounds charging capacity, blast (cupola) furnaces, and reverberatory furnaces	L	PM	construction or modification commenced after 6/11/73
Secondary Brass and Bronze Production Plants: reverberatory and electric furnaces of 2205 pounds or greater production capacity and blast (cupola) furnaces of 550 pounds per hour or greater production capacity	M	PM	construction or modification commenced after 06/11/73
Oxygen Process Furnaces	N	PM	construction or modification commenced after 06/11/73
Top-blown Basic Oxygen Process Steelmaking Facilities (BOPF) and hot metal transfer stations and skimming stations used with bottom-blown or top-blown BOPFs	Na	PM	construction, modification, or reconstruction commenced after 1/20/83

Sewage Treatment Plants	O	PM	construction or modification commenced after 6/11/73
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SOURCE	40 CFR 60 SUBPART	REGULATED POLLUTANTS	EFFECTIVE DATE
Primary Copper Smelters: dryer, roaster, smelting furnace, and copper converter	P	PM and SO ₂	construction or modification commenced after 10/16/74
Primary Zinc Smelters: roaster and sintering machine	Q	PM and SO ₂	construction or modification commenced after 10/16/74
Primary Lead Smelters: sintering machine, sintering machine discharge end, blast furnace, dross reverberatory furnace, electric smelting furnace, and converter	R	PM and SO ₂	construction or modification commenced after 10/16/74
Primary Aluminum Reduction Plants: potroom groups and anode bake plants	S	fluorides	construction or modification commenced after 10/23/74
Phosphate Fertilizer Industry: wet-process phosphoric acid plant having a design capacity of more than 15 tons of equivalent P ₂ O ₅ feed per calendar day	T	fluorides	construction or modification commenced after 0/22/74
Phosphate Fertilizer Industry: superphosphoric acid plant having a design capacity of more than 15 tons of equivalent P ₂ O ₅ feed per calendar day	U	fluorides	construction or modification commenced after 10/22/74
Phosphate Fertilizer Industry: granular diammonium phosphate plant having a design capacity of more than 15 tons of equivalent P ₂ O ₅ feed per calendar day	V	fluorides	construction or modification commenced after 10/22/74
Phosphate Fertilizer Industry: triple superphosphate plant having a design capacity of more than 15 tons of equivalent P ₂ O ₅ feed per calendar day	W	fluorides	construction or modification commenced after 10/22/74
Phosphate Fertilizer Industry: granular triple superphosphate storage facility	X	fluorides	construction or modification commenced after 10/22/74
Coal Preparation Plants which process more than 200 tons per day	Y	PM	construction or modification commenced after 10/24/74
Ferroalloy Production Facilities	Z	PM and CO	construction or modification commenced after 10/21/74
Steel Plants: produce carbon, alloy, or specialty steels; electric arc furnaces and dust-handling systems	AA	PM	construction, modification, or reconstruction commenced after 10/21/74 and on or before 8/17/83
Steel Plants: produce carbon, alloy, or specialty steels; electric arc furnaces, argon-oxygen de-carburization vessels, and dust-handling systems	AAa	PM	construction, modification, or reconstruction commenced after 8/17/83

SOURCE	40 CFR 60 SUBPART	REGULATED POLLUTANTS	EFFECTIVE DATE
Kraft Pulp Mills: digester system, brown stock washer system, multiple-effect evaporator system, recovery furnace, smelt dissolving tank, lime kiln, and condensate stripper system	BB	PM and TRS	construction or modification commenced after 09/24/76
Glass Melting Furnace	CC	PM	construction or modification commenced after 06/15/79
Grain Elevators: truck loading/unloading station, truck loading station, barge and ship unloading station, barge and ship loading station, railcar loading station, railcar unloading station, grain dryer and all grain handling operations	DD	PM	construction, modification, or reconstruction commenced after 08/03/78
Surface Coating of Metal Furniture	EE	VOC	construction, modification, or reconstruction commenced after 11/28/80
Stationary Gas Turbines with a heat input at peak load equal to or > 10.7 gigajoules per hour, based on the lower heating value of the fuel fired	GG	NO _x and SO ₂	construction, modification, or reconstruction commenced after 10/03/77
Rotary Lime Kiln used in the manufacture of lime	HH	PM	construction or modification commenced after 05/03/77
Lead-Acid Battery Manufacturing Plants that produces or has the design capacity to produce in one day (24 hours) batteries containing an amount of lead equal to or greater than 5.9 Mg (6.5 tons)	KK	Lead	construction or modification after 01/14/80
Metallic Mineral Processing Plants: crusher and screen in open-pit mines; each crusher, screen bucket elevator, conveyor belt transfer point, thermal dryer, product packaging station, storage bin, enclosed storage area, truck loading station, truck unloading station, railcar loading station, and railcar unloading station at the mill or concentrator	LL	PM	construction or modification commenced after 08/24/82
Automobile and Light-Duty Truck Surface Coating Operations: prime coat operation, each guide coat operation and each topcoat	MM	VOC	construction, modification, or reconstruction commenced after 10/05/79

operation			
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SOURCE	40 CFR 60 SUBPART	REGULATED POLLUTANTS	EFFECTIVE DATE
Phosphate Rock Plants: phosphate rock plants which have a maximum plant production capacity > 3.6 megagrams per hour (4 tons/hr); dryers, calciners grinders, and ground rock handling and storage facilities, except those facilities producing or preparing phosphate rock solely for consumption in elemental phosphorus production	NN	PM	construction, modification, or reconstruction commenced after 09/21/79
Ammonium Sulfate Manufacture: ammonium sulfate dryer within an ammonium sulfate manufacturing plant in the caprolactam by-product, synthetic, and coke oven by-product sectors of the ammonium sulfate industry	PP	PM	construction or modification commenced after 02/04/80
Graphic Arts Industry: publication rotogravure printing process	QQ	VOC	construction, modification, or reconstruction commenced after 08/28/80
Pressure Sensitive Tape and Label Surface Coating Operations	RR	VOC	construction, modification, or reconstruction commenced after 12/30/80
Industrial Surface Coating: large appliances	SS	VOC	construction, modification, or reconstruction commenced after 12/24/80
Metal Coil Surface Coating: prime coat operation, prime and finish coat operation combined when the finish coat is applied wet on wet over the prime coat and both coatings are cured simultaneously	TT	VOC	construction, modification, or reconstruction commenced after 01/05/81
Asphalt Processing and Asphalt Roofing Manufacture: saturator and each mineral handling and storage facility at asphalt roofing plants; and each asphalt storage tank and each blowing still at asphalt storage tank or blowing still that processes and/or stores only nonroofing and asphalt roofing plants	UU	PM	construction or modification commenced after 11/18/80
Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry	VV	VOC	construction and modification commenced after 01/05/81
Beverage Can Surface Coating Industry: exterior base coat operation, overvarnish coating operation, and inside spray coating operation	WW	VOC	construction, modification, or reconstruction commenced after 11/26/80

SOURCE	40 CFR 60 SUBPART	REGULATED POLLUTANTS	EFFECTIVE DATE
Bulk Gasoline Terminals: loading racks at a bulk gasoline terminal which deliver liquid product into gasoline tank trucks	XX	VOC	construction or modification commenced after 12/17/80
New Residential Wood Heaters	AAA	PM	manufactured on or after 07/01/88 or sold on or after 07/01/90
Rubber Tire Manufacturing Industry: undertread cementing operation, sidewall cementing operation; tread end cementing operation, bead cementing operation, greentire spraying operation, Michelin-A operation, Michelin-B operation, and each Michelin-C automatic operation	BBB	VOC	construction, modification, or reconstruction commenced after 01/20/83
VOC Emissions from the Polymer Manufacturing Industry: Polypropylene and polyethylene	DDD	TOC	construction, modification, or reconstruction commenced after 01/10/89. Some processes that are constructed, modified, or reconstructed on or before 01/10/89 but after 09/30/87 are affected.
Polystyrene and poly(ethylene terephthalate)		TOC	construction, modification, or reconstruction commenced after 09/30/87
Flexible Vinyl and Urethane Coating and Printing: rotogravure printing line used to print or coat flexible vinyl or urethane product	FFF	VOC	construction, modification, or reconstruction commenced after 01/18/83
Equipment Leaks of VOC in Petroleum Refineries	GGG	VOC	construction and modification commenced after 01/04/83
Synthetic Fiber Production Facilities: solvent-spun synthetic fiber process that produces more than 500 megagrams of fiber per year	HHH	VOC	construction or reconstruction commenced after 11/23/82
Synthetic Organic Chemical Manufacturing Industry Air Oxidation Unit Processes	III	TOC	construction, modification, or reconstruction commenced after 10/21/83
Petroleum Dry Cleaners: total manufacturers' rated dryer capacity equal to or greater than 38 kilograms (84 pounds): Petroleum solvent	JJJ	VOC	construction and modification commenced after 12/14/82

dry cleaning dryers, washers, filters, stills, and settling tanks			
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SOURCE	40 CFR 60 SUBPART	REGULATED POLLUTANTS	EFFECTIVE DATE
Onshore Natural Gas Processing	KKK	VOC	construction, modification, or reconstruction commenced after 01/20/84
Onshore Natural Gas Processing	LLL	SO ₂	construction or modification commenced after 01/20/84
Synthetic Organic Chemical Manufacturing Industry Distillation Operations	NNN	VOC	construction, modification, or reconstruction commenced after 12/30/83
Nonmetallic Mineral Processing Plants: crusher grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station. Also crushers and grinding mills at hot mix asphalt facilities	OOO	PM	construction, modification, or reconstruction commenced after 08/31/83
Wool Fiberglass Insulation Manufacturing Plants: rotary spin wool fiberglass insulation manufacturing line	PPP	PM	construction, modification, or reconstruction commenced after 02/07/84
Petroleum Refinery Wastewater Systems	QQQ	VOC	construction, modification, or reconstruction commenced after 05/04/87
Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes	RRR	TOC	construction, modification, or reconstruction commenced after 06/29/90
Magnetic Tape Coating Facilities	SSS	VOC	construction, modification, or reconstruction commenced after 01/22/86
Industrial Surface Coating: business machines	TTT	VOC	construction, modification, or reconstruction after 01/08/86
Calciners and Dryers in Mineral Industries	UUU	PM	construction, modification, or reconstruction after 04/23/86
Polymeric Coating of Support Substrates Facilities	VVV	VOC	construction, modification, or reconstruction after 04/30/87
Municipal Solid Waste Landfills	WWW (see Cc)	NMOC	construction, modification, or reconstruction or began accepting waste on or after 05/30/91
Small Municipal Waste Combustion Units	AAAA	Metals (cadmium, lead, mercury, opacity, PM) organics (dioxin/furan), acid gases (HCL, NO _x , SO ₂), CO, and fugitive ash	Construction commenced after 8/30/99 or modification or reconstruction commenced after 6/6/01
Small Municipal Waste Combustion Units	BBBB	Metals (cadmium, lead, mercury, opacity, PM) organics	Construction commenced on or before 8/30/99

		(dioxin/furan), acid gases (HCL, NO _x , SO ₂), CO, and fugitive ash	
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SOURCE	40 CFR 60 SUBPART	REGULATED POLLUTANTS	EFFECTIVE DATE
Commercial and Industrial Solid Waste Incinerators	CCCC	cadmium, lead, mercury, opacity, PM, dioxin/furan, HCL, NO _x , SO ₂ , and CO	Construction commenced after 11/30/99 or modification or reconstruction commenced on or after 6/1/01
Commercial and Industrial Solid Waste Incinerators	DDDD	cadmium, lead, mercury, opacity, PM, dioxin/furan, HCL, NO _x , SO ₂ , and CO	Construction commenced on or before 11/30/99

KEY

CO	-	Carbon Monoxide	NMOC	-	Nonmethane Organic Compounds
H ₂ S	-	Hydrogen Sulfide	NO _x	-	Nitrogen Oxides
H ₂ SO ₄	-	Sulfuric Acid	PM	-	Particular Matter
HCL	-	Hydrogen Chloride	SO ₂	-	Sulfur Dioxide
TOC	-	Total Organic Compounds	TRS	-	Total Reduced Sulfur
VOC	-	Volatile Organic Compounds	()	-	Expressed as